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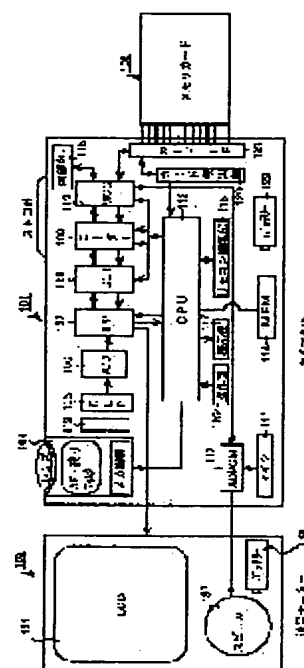
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(54) DIGITAL STILL VIDEO CAMERA

(57)Abstract:

PROBLEM TO BE SOLVED: To provide the digital still video camera with excellent operability in the case of the digital still camera provided with an internal memory and an external memory.

SOLUTION: The digital still video camera is provided with an internal memory 118 storing image data obtained by picking up an image of an object and/or received audio data and with an external memory 103 storing the image data and/or audio data and connected removably to a connection section 121. In this case, when an external memory detection means 120 discriminates it that the external memory 103 is connected to the connection section 121, a recording control means 113 controls data to be recorded to the external memory 103 with priority and when the external memory detection means 120 discriminates it that the external memory 103 is not connected to the connection section 121, the recording control means 113 controls data to be recorded to the internal memory 108 with priority.



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CLAIMS

[Claim(s)]

[Claim 1]image data which picturized a photographic subject -- and -- or with an internal memory which stores incorporated voice data. said image data -- and -- or with a terminal area which connects external memory which stores voice data removable. An external memory detection means to detect whether said external memory is connected to said terminal area, Give priority, when it is judged that said external memory is connected by said external memory detection means, record this external memory, and by said external memory

detection means. A digital still video camera having a recording control means recorded on said internal memory when it is judged that said external memory is not connected.

[Claim 2]A remaining capacity detection means by which said digital still video camera detects record remaining capacity of said internal memory, and record remaining capacity of said external memory, The digital still video camera according to claim 1 having the number informing means of tops which reports record number of sheets recordable on said internal memory and said external memory.

[Claim 3]The digital still video camera according to claim 1 or 2 switching said recording control means to record to said internal memory when it becomes unrecordable to said external memory.

[Claim 4]The digital still video camera according to claim 1, 2, or 3 when said digital still video camera is made [record to said internal memory] by said recording control means, wherein it has an internal-memory recording-mode informing means which tells that it is record to said internal memory.

[Claim 5]The digital still video camera according to claim 4 continuing reporting said internal-memory recording-mode informing means even after record to said internal memory is completed.

[Claim 6]The digital still video camera according to claim 1, 2, 3, 4, or 5 transmitting said recording control means to external memory for which record data stored in said internal memory was this exchanged when exchanged in said external memory after recording operation to said internal memory.

[Claim 7]Have a format judging means which judges whether said digital still video camera is formatted into a state which can record said external memory, and said recording control means, When judged with not being formatted into a state which said external memory can record by said format judging means, The digital still video camera according to claim 1, 2, 3, 4, 5, or 6 characterized by formatting into a state which can record this external memory in advance of record to this external memory, or transmission.

[Claim 8]A verifying means which asks an operator for agreement of a format when judged with said digital still video camera not being formatted into a state which can record said external memory by said format judging means, The digital still video camera according to claim 7 formatting into a state which can record this external memory only when it has a check agreement means to direct that an operator has agreed on a format and said recording control means has directions of agreement by said check agreement means.

[Claim 9]A read-out reproduction means which said digital still video camera reads data currently recorded on said internal memory or external memory, and is changed into a regenerative signal, Have an output means which outputs a regenerative signal by the aforementioned read-out reproduction means, and the aforementioned read-out reproduction means, The digital still video camera according to claim 1, 2, 3, 4, 5, 6, 7, or 8 giving priority to said external memory and performing read-out of record data from said internal memory or external memory.

[Claim 10]The digital still video camera according to claim 9 when the aforementioned read-out reproduction means is judged [that said external memory is not connected by said external memory detection means], wherein it reads record data from said internal memory.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]In the digital still camera especially provided with an internal memory and external

memory about the digital still video camera which this invention photos a picture and is recorded on storages, such as a memory card. It is not necessary to set it as either, and without an operator judging either an internal memory or external memory at the time of record or reproduction, further, an operator does not need to recognize the existence of the format to every external memory, and it is related with the digital still video camera excellent in operativity.

[0002]

[Description of the Prior Art]In a digital still video camera conventionally, Since a storage capacity huge about one image is needed if the photoed image is memorized to a storage as it is, after compressing the changed digital image data by a compression means and reducing data volume, storages, such as an attached memory card, are made to memorize.

[0003]For example, to "the electronic "still" camera and the playback equipment for it" of JP,5-91452,A. Build in the internal memory for storing image data, and the external memory for storing image data, and via a connector The memory cartridge which can connect enabling free attachment and detachment, Have a writing control means which writes the photoed image data in either one of an internal memory and external memory, and still more preferably, At the time of the writing of image data, or reproduction, the composition provided with the memory selecting switch with which an operator chooses either one of an internal memory and external memory is indicated.

[0004]

[Problem(s) to be Solved by the Invention]However, if it was in the above-mentioned conventional digital still video camera, the operator always made a judgment of an internal memory or external memory, the setting-operation by a memory selecting switch was needed, and there was a problem that operativity was bad for an operator.

[0005]When there are no directions of the operator by a memory selecting switch, giving priority and recording on an internal memory is decided and these contents of record are reproduced in other apparatus, it is necessary to connect with other playback apparatus, and the work for it occurs. Also when playback apparatus was loaded via external memory (an IC card, a memory card, etc.), the work which transmits the image data beforehand recorded on the internal memory to external memory occurred, and there was a problem that operativity was bad for [both] an operator.

[0006]When recording image data on storages, such as a memory card, newly, it needed to be formatted into the beforehand recordable state, but the operator needed to recognize and deal with the existence of the format for every storage, and there was a problem that operativity was bad for an operator.

[0007]In the digital still camera which this invention was made in view of the above-mentioned problem, and was provided with an internal memory and external memory, It is not necessary to set it as either, and aims at providing the digital still video camera excellent in operativity, without an operator judging either an internal memory or external memory at the time of record or reproduction.

[0008]As judging whether other purposes of this invention are formatted into the state which can be recorded when loaded with external memory, and formatting automatically [when not formatted], It is providing the digital still video camera which an operator's does not need to recognize the existence of the format to every storage, and was excellent in operativity.

[0009]

[Means for Solving the Problem]In order to attain the above-mentioned purpose, a digital still video camera concerning claim 1, image data which picturized a photographic subject -- and -- or with an internal memory which stores incorporated voice data. said image data -- and -- or with a terminal area which connects external memory which stores voice data removable. An external memory detection means to detect whether said external memory is connected to said terminal area, When it is judged that said external memory is connected by said external memory detection means, this external memory is given priority to and recorded, and when it is judged that said external memory is not connected by said external memory detection means, it has a recording control means recorded on said internal memory.

[0010]A digital still video camera concerning claim 2, In the digital still video camera according to claim 1, a digital still video camera, It has a remaining capacity detection means to detect record remaining capacity of said internal memory, and record remaining capacity of said external memory, and the number informing means of tops which reports record number of sheets recordable on said internal memory and said external memory.

[0011]In the digital still video camera according to claim 1 or 2, when record to said external memory of a digital still video camera concerning claim 3 becomes impossible, it switches said recording control means to record to

said internal memory.

[0012]A digital still video camera concerning claim 4, In the digital still video camera according to claim 1, 2, or 3, said digital still video camera is provided with an internal-memory recording-mode informing means which tells that it is record to said internal memory, when record to said internal memory is made by said recording control means.

[0013]In the digital still video camera according to claim 4, a digital still video camera concerning claim 5 continues reporting said internal-memory recording-mode informing means, even after record to said internal memory is completed.

[0014]A digital still video camera concerning claim 6, In the digital still video camera according to claim 1, 2, 3, 4, or 5, said recording control means is transmitted to external memory for which record data stored in said internal memory was this exchanged, when exchanged in said external memory after recording operation to said internal memory.

[0015]A digital still video camera concerning claim 7, In the digital still video camera according to claim 1, 2, 3, 4, 5, or 6, said digital still video camera, Have a format judging means which judges whether it is formatted into a state which said external memory can record, and said recording control means, When judged with not being formatted into a state which said external memory can record by said format judging means, it formats into a state which can record this external memory in advance of record to this external memory, or transmission.

[0016]A digital still video camera concerning claim 8, In the digital still video camera according to claim 7, said digital still video camera, A verifying means which asks an operator for agreement of a format when judged with not being formatted into a state which said external memory can record by said format judging means, It has a check agreement means to direct that an operator has agreed on a format, and said recording control means is formatted into a state which can record this external memory only when there are directions of agreement by said check agreement means.

[0017]A digital still video camera concerning claim 9, In the digital still video camera according to claim 1, 2, 3, 4, 5, 6, 7, or 8, said digital still video camera, A read-out reproduction means which reads data currently recorded on said internal memory or external memory, and is changed into a regenerative signal, Having an output means which outputs a regenerative signal by the aforementioned read-out reproduction means, the aforementioned read-out reproduction means gives priority to said external memory, and performs read-out of record data from said internal memory or external memory.

[0018]A digital still video camera concerning claim 10, In the digital still video camera according to claim 9, the aforementioned read-out reproduction means reads record data from said internal memory, when it is judged that said external memory is not connected by said external memory detection means.

[0019]

[Embodiment of the Invention]Hereafter, the outline of the digital still video camera of this invention is explained in detail with reference to drawings in order about one embodiment of the digital still video camera of this invention.

[0020][The outline of the digital still video camera of this invention] In the digital still video camera concerning claim 1 of this invention, the image data which picturized the photographic subject as shown in drawing 1 -- and -- or with the internal memory 118 which stores the incorporated voice data. image data -- and -- or the recording control means 113 in a digital still video camera provided with the external memory 103 which stores voice data and is connected to the terminal area 121 removable, When the external memory 103 was connected to the terminal area 121 and it is judged by the external memory detection means 120, This external memory 103 is given priority to and recorded, and when judged [not having connected the external memory 103 by the external memory detection means 121, and], he is trying to record on the internal memory 118. Thus, since the recording medium which should detect connection/connectionless one of the external memory 103, and should be recorded automatically is determined, It is not necessary to set it as either with a selecting switch etc., and the digital still video camera excellent in operativity can be realized, without an operator judging either the internal memory 118 or the external memory 103.

[0021]In the digital still video camera concerning claim 2. The record remaining capacity of the internal memory 118 and the record remaining capacity of the external memory 103 are detected by the remaining capacity detection means 110, for example, CPU113 computes record number of sheets recordable on the internal memory 118 and the external memory 103, and he is trying for the number informing means 117 of tops to report. Thus, since total of the remaining capacity of the internal memory 118 and the external memory 103 is displayed as recordable number of sheets, Calculation of recognizing and adding each remaining capacity

becomes unnecessary, and an operator can be quite obvious, and can recognize remaining capacity, and can also save the time and effort of displaying the residue of each storage with directions by the final controlling element 116, and can realize the digital still video camera excellent in operativity.

[0022]When having become unrecordable to the external memory 103 is detected by the remaining capacity detection means 110 or the external memory detection means 120, he is trying for the recording control means 113 to switch it to record to the internal memory 118 in the digital still video camera concerning claim 3. Since it switches to record to the internal memory 118 automatically when this has loaded with neither the case where record to the external memory 103 is completed, nor the external memory 103, The problem that it is unrecordable even if the internal memory 118 has capacity, if not loaded with the external memory 103 cannot be generated, either, and the time and effort that an operator does directions by the final controlling element 116, etc. can be saved, and the digital still video camera whose operativity improved can be realized.

[0023]When record to the internal memory 118 is made by the recording control means 113, he is trying to tell that it is record to the internal memory 118 by the internal-memory recording-mode informing means 117 in the digital still video camera concerning claim 4. When it becomes clear that an operator can recognize by this whether it is recorded on which recording medium now, and record to the external memory 103 is not made for a certain reason, Judgment of charge / not loading of the external memory 103, a judgment of exchange of the external memory 103, etc. can be made promptly, and the digital still video camera excellent in the operativity to which the suitable judgment for an operator can be urged can be realized.

[0024]In the digital still video camera concerning claim 5, even after record to the internal memory 118 is completed, the internal-memory recording-mode informing means 117 is continuing reporting that it is record to the internal memory 118. By this, after recording on the internal memory 118, by the time of the next photography. When there is free time, he forgets for there to be no remaining capacity in the external memory 103, and the digital still video camera excellent in the operativity to which the suitable judgment for an operator can be urged can be realized, without the fault that only a part for the remaining capacity of the internal memory 118 can be photoed occurring after all.

[0025]When exchanged in the external memory 103 after the recording operation to the internal memory 118, he is trying to transmit the recording control means 113 to the external memory 103 for which the record data stored in the internal memory 118 was this exchanged in the digital still video camera concerning claim 6. When this has reported that the internal-memory recording-mode informing means 117 is record to the internal memory 118, for example and the external memory 103 is exchanged, in order that the data recorded previously may remain in the internal memory 118, When the fault that reproduction sequence will become previously, and the remaining capacity of the external memory 103 disappear from the data of the internal memory 118 which the data recorded after external memory 103 exchange recorded previously and it switches to record to the internal memory 118, without the fault that there is little remaining capacity of the internal memory 118, and photography of sufficient number of sheets cannot be performed occurs -- a user -- a FRIENDLY digital still video camera is realizable.

[0026]In the digital still video camera concerning claim 7. When judged with not being formatted into the state which can record the external memory 103 by the format judging means 110, he is trying to format the recording control means 113 into the state which can record this external memory 103 in advance of the record to this external memory 103, or transmission. When it loads with the external memory 103 newly thereby for example, since it is not formatted into the recordable state. An operator in advance of transmission to the external memory 103, without the fault that transmission to the external memory 103 cannot be performed occurring with directions of final controlling element 116 grade. The time and effort of formatting the external memory 103 can also be saved, and the digital still video camera whose operativity improved can be realized.

[0027]In the digital still video camera concerning claim 8. When judged with not being formatted into the state which the external memory 103 can record by the format judging means 110, by the verifying means 117. It supposes that an operator is asked for agreement of a format, and only when there are an operator's agreement directions by the check agreement means 116, he is trying to format the recording control means 113 into the state which can record this external memory 103. Even when it judges with the format judging means 110 not being accidentally formatted when it loads with the external memory 103 on which it is already formatted into and a certain data is recorded by this, for example, format operation is started automatically. the fault of eliminating the data currently recorded on the external memory 103 does not occur -- a user -- a FRIENDLY digital still video camera is realizable.

[0028]In the digital still video camera concerning claim 9. By the read-out reproduction means 107-110, read

the data currently recorded on the internal memory 118 or the external memory 103, change into a regenerative signal and by the output means 102. When outputting this regenerative signal, about read-out of the record data from the internal memory 118 or the external memory 103, the read-out reproduction means 107-110 give priority to the external memory 103, and it is made to perform them. Thus, since the recording medium which should detect connection/connectionless one of the external memory 103, for example, and should be reproduced automatically is determined, Without an operator judging either the internal memory 118 or the external memory 103, it is not necessary to set it as either with a selecting switch etc. and also and can reproduce in the order which suited recording order, and the digital still video camera excellent in operativity can be realized.

[0029]When it is judged that the external memory 103 is not connected by the external memory detection means 120, he is trying for the read-out reproduction means 107-110 to read record data from the internal memory 118 in the digital still video camera concerning claim 10. Without the fault of not being reproduced even if data is recorded on the internal memory 118 occurring by this, when not loaded with the external memory 103, an operator does not have to do setup instruction and can realize the digital still video camera excellent in operativity.

[0030][Embodiment of the Invention]Drawing 1 shows and divides roughly the block lineblock diagram of the digital still video camera concerning one embodiment of this invention. The camera body 101, the liquid crystal display monitor 102 as an image display means which displays the picturized picture, and the picturized image data or voice data is recorded, for example, it comprises the memory cards 103, such as flash memory card.

[0031]The camera body 101 The lens unit 104, CCD105, A/D converter 106, IPP107, DCT108, the coder 109, MCC110, the microphone 111, ADPCM112, CPU113, MEM114, the remote control function section 115, the final controlling element 116, It has indicator 117, internal-memory 118, optical low pass filter 119, card primary detecting element 120, and card IF121 and the battery 122.

[0032]The lens unit 104 consists of a lens part, auto-focusing (AF), a diaphragm and a filter part, a mechanism mechanism, etc., and the mechanical shutter of a mechanism mechanism performs simultaneous exposure of the two fields. CCD(charge coupled device) 105 changes into an electrical signal (analog image data) the image inputted via the lens unit 104. A/D converter 106 changes into digital image data the analog image data inputted from CCD105.

[0033]IPP(Image Pre-Processor) 107 divides into color difference and luminosity the digital image data inputted from A/D converter 106, and performs data processing for various processing, amendment and graphical data compression / extension. Orthogonal transformation DCT(Discrete Cosine Transform) 108 is [orthogonal transformation] like passing away of the graphical data compression/extension of JPEG conformity is performed. Huffman encoding and composite-ization the coder (Huffman Encoder/Decoder) 109 is [-ization] like passing away of the graphical data compression/extension of JPEG conformity are performed.

[0034]MCC(Memory Card Controller) 110, Record to the memory card 103 which once stored the picture by which compression processing was carried out, and the sound which was incorporated from the microphone 111 and digitized, processed it concurrently, and passed card IF(interface) 121, or read-out from the memory card 103 is performed. In order to carry out speed recording to the memory card 103 directly at this time, without passing CPU113, simultaneous record of an animation and a sound is made. ADPCM(Adaptive Differential Pulse Code Modulation) 112 carries out [sound / which was inputted with the microphone 111] digital conversion, and it performs compression/elongation processing. CPU113 controls operation of each part of the above by a program with reference to the data of the parameter in the memory (MEM) 114, etc.

[0035]The remote control function section 115 has a remote control receiving function, and the final controlling element 116 inputs various button switch groups, and it performs display control of the display panel (indicator) 117. The battery 122 supplies electric power to each part of the above. The internal memory 118 is a work memory which holds temporarily the image data or voice data which should be recorded on the memory card 103.

[0036]Although the memory card 103 is connected with the camera body 101 removable via the card interface (card IF) 121, the existence of charge of the memory card 103 concerned is checked by the card primary detecting element 120. The remaining capacity of the memory card 103 and the internal memory 118 is detected by MCC110, and CPU113 computes record number of sheets recordable about the memory card 103 and the internal memory 118, and reports it to an operator via the indicator 117.

[0037]The liquid crystal display monitor 102 is provided with the liquid crystal panel (LCD) 131 and the speaker 132 at least. 133 shows the battery for liquid crystal display monitor 102.

[0038]In the composition shown in drawing 1, the role of the external memory which the memory card 103 says to the claim of this invention is played. A terminal area is realized by card IF121, an external memory detection means is realized by the card primary detecting element 120, and the recording control means is realized by CPU113, respectively. MCC110 realizes a remaining capacity detection means or a format judging means, the indicator 117 realizes an internal-memory recording-mode informing means or a verifying means for the number informing means of tops, and the final controlling element 116 realizes a check agreement means, respectively. A read-out reproduction means is realized by IPP107, DCT108, the coder 109, and MCC110, and the output means is realized by the liquid crystal display monitor 102.

[0039]Next, drawing 2 is an outline view of the digital still video camera of this embodiment. the inside of a figure, and 201 -- a zoom switch, and 203a and 203b of a power supply mode switch and 205 are [a finder and 208] the insert portions of the memory card 103 a memory card ejecting switch and 206 a top delivery switch and 204 a release switch and 202. That is, in the example shown in drawing 2, the release switch 201, the zoom switch 202, the top delivery switches 203a and 203b, the power supply mode switch 204, and the memory card ejecting switch 205 grade are provided as the final controlling element 116.

[0040]Drawing 3 is an explanatory view showing the example of 1 composition of the card primary detecting element 120. The card primary detecting element 120 of this example of composition detects that detected change of the predetermined signal in card IF121 when the memory card 103 is connected to card IF121, and the camera body 101 was loaded with the memory card 103.

[0041]The composition of a card primary detecting element (external memory detection means) can consider what is depended on various methods, without being restricted to the composition by such an electric method. For example, as shown in drawing 4, there is the method of detecting insertion of the memory card 103 physically. That is, the example of composition of drawing 4 detects that the detection means 420a detected that the contact pieces 420b and 420c contacted by insertion of the memory card 103, and the camera body 101 was loaded with the memory card 103 in it.

[0042]Based on the above composition, the operation in the digital still video camera of this example is explained with reference to the explanatory view shown in the flow chart shown in drawing 5 and drawing 6 and drawing 7 - drawing 11.

[0043](1) The one [a power supply] in the flow chart of recording operation drawing 5 in case the camera body 101 is loaded with the memory card 103 first if the power supply mode switch 204 is set as a recording mode at Step S501 (refer to drawing 7 (b)). Next, since the existence of the memory card 103 is checked by the card primary detecting element 120 and it is loaded with the memory card 103 in this case at Step S502, it progresses to Step S503.

[0044]In Step S503, the remaining capacity A of the memory card 103 is checked by MCC110. At Step S504, when the remaining capacity A of the memory card 103 is "0", it will progress to Step S510 according to the case where it is not loaded with the memory card 103 mentioned later.

[0045]Here, now, it supposes that the number of the nominal capacity of the memory card 103 is 30, and suppose that the number of the remaining capacity A was 15. Therefore, it will progress to Step S505 in this case, and the remaining capacity B of the internal memory 118 will be checked. Here the remaining capacity B of the internal memory 118. Supposing it is five sheets, the added result of the remaining capacity A of the memory card 103 and the remaining capacity B of the internal memory 118 in Step S506 will be 20 sheets, and as shown in drawing 8 (a), at Step S507, the display of "20" will be made as the number of tops which can be photoed to the predetermined region of the indicator 117.

[0046]next, photography preparation (Step S508) should do -- the image data etc. which were photoed record on the memory card 103 -- having (Step S509) -- the top numeral in the indicator 117 which can be photoed decreases to the degree of photography with "19" (refer to drawing 8 (b)), "18", and "17." In other fields of the indicator 117, the display 801 which shows that it is loaded with the memory card 103 is also made simultaneously. This display is performed based on the detection result by the above-mentioned card detection part 120.

[0047]When photography is continued, the capacity of the memory card 103 will be lost and "5" whose top numeral in the indicator 117 which can be photoed is the remaining capacity B of the internal memory 118 will be displayed (refer to drawing 9 (a)). Since the remaining capacity of what is loaded with the memory card 103 is "0" at this time, the display which shows that it is loaded with the memory card 103 in the indicator 117 is in the state where it disappeared like 901 in drawing 9 (a).

[0048]That is, priority is given to the result of a capacity check over the detection result by the card detection

part 120 in this case. This means that it is shown that it is a recording mode to the internal memory 118, when it is shown that it is a recording mode to the memory card 103 when the "card" display in the indicator 117 is outputted, and the "card" display is eliminated.

[0049](2) When the camera body 101 is not loaded with the memory card 103, or recording operation in case the remaining capacity of the memory card 103 is "0" -- in this case, As mentioned above, since the display which shows that it is loaded with the memory card 103 in the indicator 117 has disappeared, it is not loaded with the memory card 103, or the operator can know that the remaining capacity of the memory card 103 is "0." In this case, the choice of the operator who wants to continue photography is whether it exchanges or loads with the memory card 103, and photography is continued, or to continue photography using the internal memory 118.

[0050]That is, in Step S510, when not exchanged or loaded with the memory card 103, it will judge that a photograph is taken only using the internal memory 118, and will progress to Step S511. At Step S511, the remaining capacity of the internal memory 118 is checked, and as shown in drawing 9 (a), the display of "5" is made as the number of tops which can be photoed to the predetermined region of the indicator 117.

[0051]next, photography preparation (Step S512) should do -- the image data etc. which were photoed record on the internal memory 118 -- having (Step S513) -- the top numeral in the indicator 117 which can be photoed decreases with "4" (refer to drawing 9 (b)) and "3" to the degree of photography. The "card" display of other fields of the indicator 117 is in the state which disappeared, and it continues (Step S514) being shown now that it is a recording mode to the internal memory 118.

[0052]In Step S510, when exchanged or loaded with the memory card 103, as shown in drawing 10, the display of a "card" is again outputted to the field 1001 of the indicator 117.

[0053]In this case, in Step S521, the judgment of whether to be formatted into the state which the memory card 103 can record by MCC110 is performed. When it is judged that the format is not made, the check of whether to format the memory card 103 is performed to an operator at Step S522.

[0054]For example, as shown in drawing 10, it checks by displaying "O.K.?" on the predetermined region 1003 of the indicator 117. When it is judged at this time that an operator may format, in order to direct that intention to the digital still video camera concerned, the depression of the release switch 201 or the switch of zoom switch 202 grade is carried out, for example. CPU113 check of the depression of this switch will start the format of the memory card 103 (Step S523).

[0055]When an operator wants to refuse a format to the display verification of Step S522, the depression of the top delivery switch 203 is carried out, for example. Then, CPU113 checks the existence of a format of the memory card 103 again. In this way, when it is judged to the memory card already held that it is not accidentally formatted by record data, the fault of starting format operation automatically and eliminating record data can be abolished.

[0056]When the memory card 103 is already formatted, or after performing the format of the memory card 103, it progresses to Step S524 and the judgment of whether record data is held at the internal memory 118 is performed. When record data is held at the internal memory 118, transmission to the memory card 103 from the internal memory 118 is automatically performed at Step S525. At this time, it indicates that it is under transmission by the scan of a segment in the predetermined region 1104 of the indicator 117 (refer to drawing 11 (a) - (d)).

[0057]Next, when it is judged that record data is not held at the internal memory 118, Or when the record data transfer from the internal memory 118 to the memory card 103 is completed. It progresses to Step S503, and like the time of judging that it is loaded with the memory card 103 in Step S502, the remaining capacity check of the memory card 103 is performed, and a series of operations are continued.

[0058](3) Explain reproduction motion, next the reproduction motion in the digital still video camera of this embodiment. in the flow chart of drawing 6 -- first -- Step S601 -- the power supply mode switch 204 -- reproduction mode -- setting (refer to drawing 7 (c)) -- one [a power supply].

[0059]Next, at Step S602, the existence of the memory card 103 is checked by the card primary detecting element 120, and the memory card 103 progresses to Step S603, when loaded. In Step S603, CPU113 chooses the reproduction from the memory card 103, and when an operator does the depression of the reproduction button, reproduction is performed.

[0060]At this time, a reproduction number is displayed like drawing 8, and whenever it carries out the depression of the reproduction button, it increases to the predetermined region of the indicator 117 with "1", "2", and "3." If the depression of the reproduction button is carried out after a reproduction number is set to "30" and all the record data of the memory card 103 is reproduced and also it will switch to reproduction of the record data of

the internal memory 118 next (Step S604). In this case, the display of the indicator 117 will increase further with "31" and "32."

[0061]If a display will be "35" and all the record data of the internal memory 118 is also reproduced, it will return to Step S602 again, the existence of the memory card 103 will be checked, and the memory card 103 will be reproduced. At this time, the display of the indicator 117 increases with "1", "2", and "3."

[0062]In Step S602, when it is judged that it is not loaded with the memory card 103, it progresses to Step S604 and reproduction is performed about the record data of the internal memory 118.

[0063]

[Effect of the Invention]As explained above, according to the digital still video camera concerning claim 1 of this invention, the image data which picturized the photographic subject -- and -- or with the internal memory which stores the incorporated voice data, image data -- and -- or a recording control means in a digital still video camera provided with the external memory which stores voice data and is connected to a terminal area removable, When external memory was connected to the terminal area and it is judged by an external memory detection means, When judged [giving priority to and recording this external memory, and not having connected external memory by an external memory detection means, and], It is not necessary to set it as either with a selecting switch etc., and the digital still video camera excellent in operativity can be provided, without an operator judging either an internal memory or external memory, since it records on an internal memory.

[0064]According to the digital still video camera concerning claim 2, the record remaining capacity of an internal memory and the record remaining capacity of external memory are detected by a remaining capacity detection means, Since the number informing means of tops reports record number of sheets recordable on an internal memory and external memory, An operator can be quite obvious, and can recognize remaining capacity, and can also save the time and effort of displaying the residue of each storage with an operator's directions, and can provide the digital still video camera excellent in operativity.

[0065]According to the digital still video camera concerning claim 3, a recording control means, When having become unrecordable to external memory is detected by the remaining capacity detection means or an external memory detection means, Since it switches to record to an internal memory, when having loaded with neither the case where record to external memory is completed, nor external memory, the digital still video camera where whose operativity switched to record to an internal memory automatically, and the operator could also save the time and effort of carrying out directions etc., and improved. It can provide.

[0066]When record to an internal memory is made by the recording control means according to the digital still video camera concerning claim 4, since it tells that it is record to an internal memory, by an internal-memory recording-mode informing means, An operator can recognize whether it is recorded on which recording medium now, and the digital still video camera excellent in the operativity to which the suitable judgment for an operator can be urged can be provided.

[0067]Even after record to an internal memory is completed according to the digital still video camera concerning claim 5, since it continues reporting that it is record to an internal memory, by an internal-memory recording-mode informing means, The digital still video camera excellent in the operativity to which the suitable judgment for an operator can be urged can be provided.

[0068]According to the digital still video camera concerning claim 6, a recording control means, When exchanged in external memory after the recording operation to an internal memory, Since it transmits to the external memory for which the record data stored in the internal memory was this exchanged, there is no inconsistency in recording order and reproduction sequence, and the fault that photography of small sufficient number of sheets cannot be performed does not have the remaining capacity of an internal memory, either -- a user -- a FRIENDLY digital still video camera can be provided.

[0069]According to the digital still video camera concerning claim 7, a recording control means, When judged with not being formatted into the state which external memory can record by the format judging means, Since it formats into the state which can record this external memory in advance of the record to this external memory, or transmission, There is also no fault that transmission to external memory cannot be performed for un-formatting, and the time and effort of formatting with an operator's directions in advance of transmission to external memory can also be saved, and the digital still video camera whose operativity improved can be provided.

[0070]According to the digital still video camera concerning claim 8, by a format judging means. When judged with not being formatted into the state which external memory can record, suppose that an operator is asked for agreement of a format by a verifying means, and a recording control means, since it formats into the state

which can record this external memory only when there are an operator's agreement directions by a check agreement means, there is also no fault of eliminating the record data of external memory by malfunction -- a user -- a FRIENDLY digital still video camera can be provided.

[0071]According to the digital still video camera concerning claim 9, by a read-out reproduction means. When reading the data currently recorded on an internal memory or external memory, changing into a regenerative signal and outputting this regenerative signal by an output means, a read-out reproduction means, Since it carries out by giving priority to external memory about read-out of the record data from an internal memory or external memory, Without an operator judging either an internal memory or external memory, it is not necessary to set it as either with a selecting switch etc. and also and can reproduce in the order which suited recording order, and the digital still video camera excellent in operativity can be provided.

[0072]According to the digital still video camera concerning claim 10, a read-out reproduction means, When it is judged that external memory is not connected by an external memory detection means, Record data from an internal memory. Since it reads, when not loaded with external memory, there is also no fault of not being reproduced even if data is recorded on the internal memory, and an operator does not have to do setup instruction, and the digital still video camera excellent in operativity can be provided.

[Translation done.]

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- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a block lineblock diagram of the digital still video camera concerning one embodiment of this invention.

[Drawing 2]It is an outline view of the digital still video camera of an embodiment.

[Drawing 3]It is an explanatory view showing the example of 1 composition of the card primary detecting element of an embodiment.

[Drawing 4]It is an explanatory view showing other examples of composition of the card primary detecting element of an embodiment.

[Drawing 5]It is a flow chart explaining the recording operation in the digital still video camera of an embodiment.

[Drawing 6]It is a flow chart explaining the reproduction motion in the digital still video camera of an embodiment.

[Drawing 7]It is an explanatory view showing setting out of the power supply mode switch of an embodiment.

[Drawing 8]It is an explanatory view showing the display example of the indicator at the time of record to the memory card of an embodiment.

[Drawing 9]It is an explanatory view showing the display example of the indicator at the time of record to the internal memory of an embodiment.

[Drawing 10]It is an explanatory view showing the display example of the indicator at the time of the format of the memory card of an embodiment.

[Drawing 11]It is an explanatory view showing the display example of the indicator at the time of the record data transfer from the internal memory of an embodiment to a memory card.

[Description of Notations]

101 Camera body

102 Liquid crystal display monitor (output means)
103 Memory card (external memory)
104 Lens unit
105 CCD (charge coupled device)
106 A/D converter
107-110 Read-out reproduction means
107 IPP(Image Pre-Processor)
108 DCT(Discrete Cosine Transform)
109 coder (Huffman Encoder/Decoder)
110 MCC(Memory Card Controller) (remaining capacity detection means, format judging means) 111 Microphone
112 ADPCM(Adaptive Differential Pulse Code Modulation)
113 CPU (recording control means)
114 Memory (MEM)
115 Remote control function section
116 Final controlling element
117 indicator (the number informing means of tops, an internal-memory recording-mode informing means, verifying means)
118 Internal memory
119 Optical low pass filter
120 card primary detecting element (external memory detection means)
121 Card IF (terminal area)
122,133 Battery
131 Liquid crystal panel (LCD)
132 Speaker
201 Release switch
202 Zoom switch
203a and 203b Top delivery switch
204 Power supply mode switch
205 Memory card ejecting switch
206 Finder
208 The insert portion of a memory card

[Translation done.]

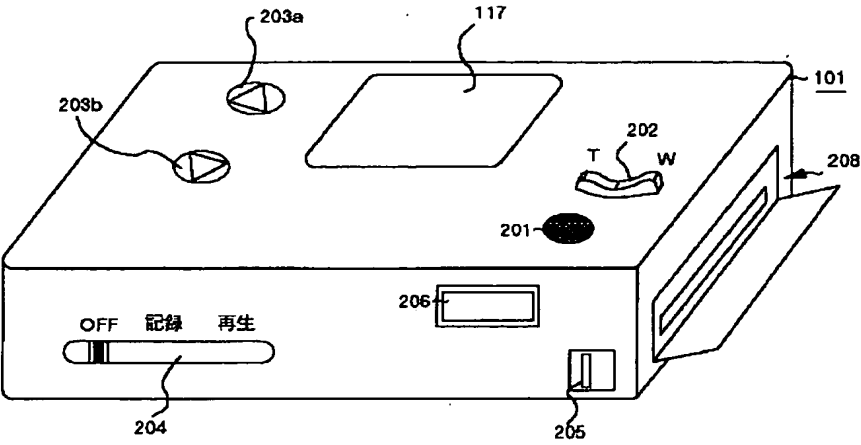
* NOTICES *

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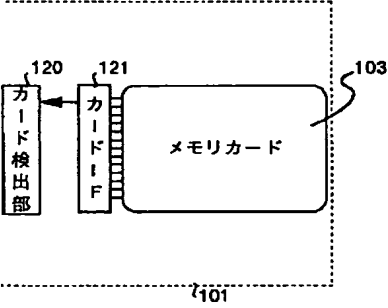
- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
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- 3.In the drawings, any words are not translated.

DRAWINGS

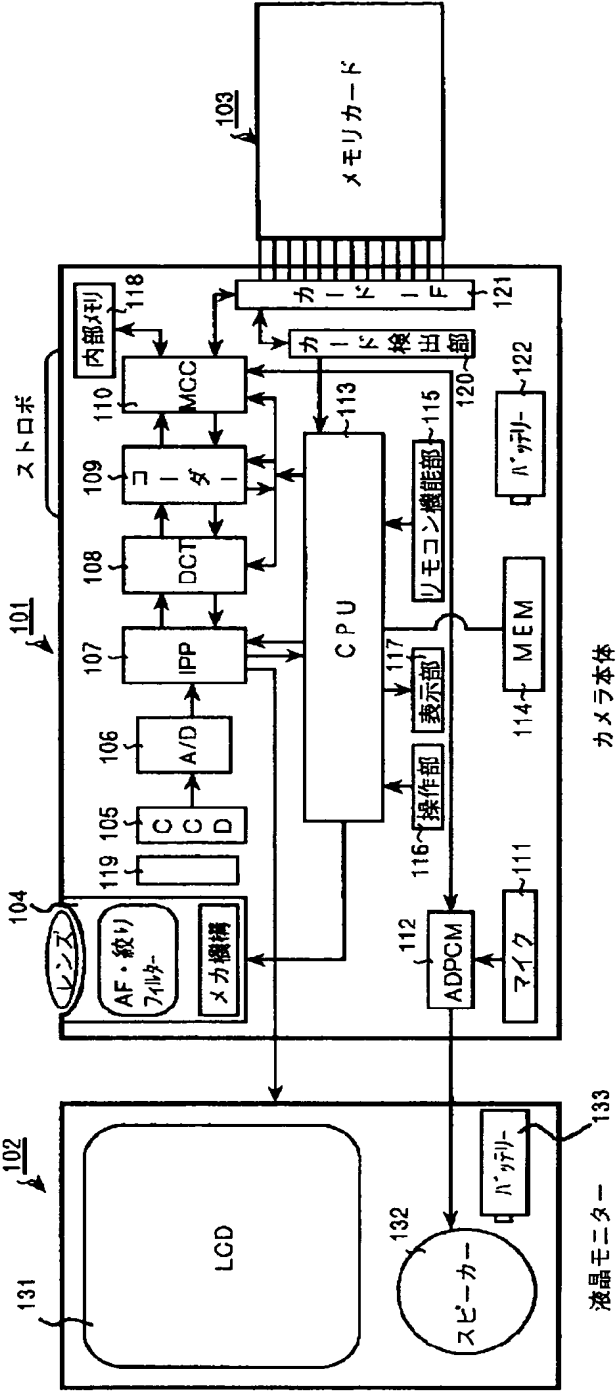
[Drawing 2]



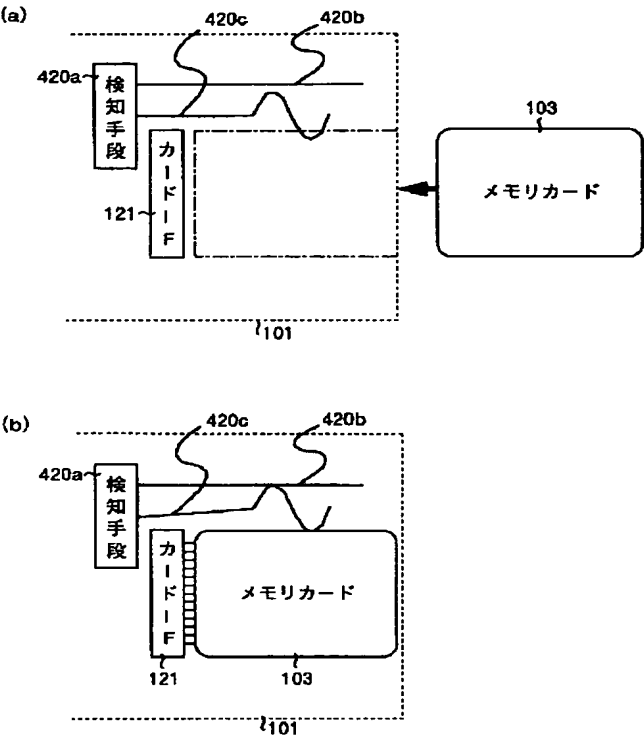
[Drawing 3]



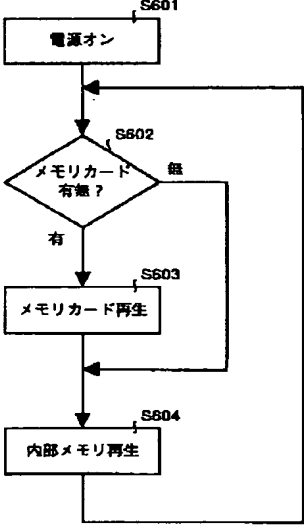
[Drawing 1]



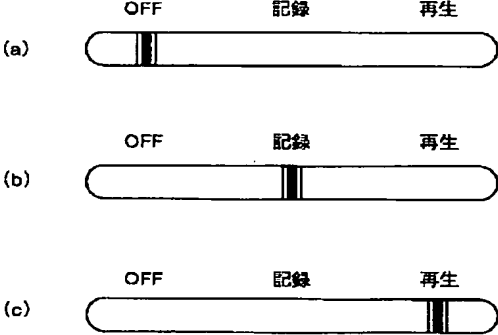
[Drawing 4]



[Drawing 6]

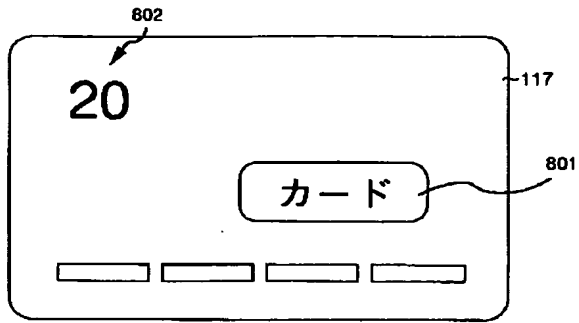


[Drawing 7]

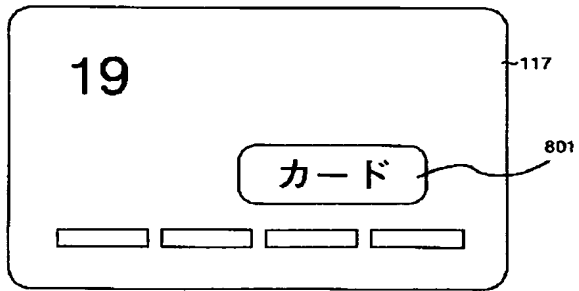


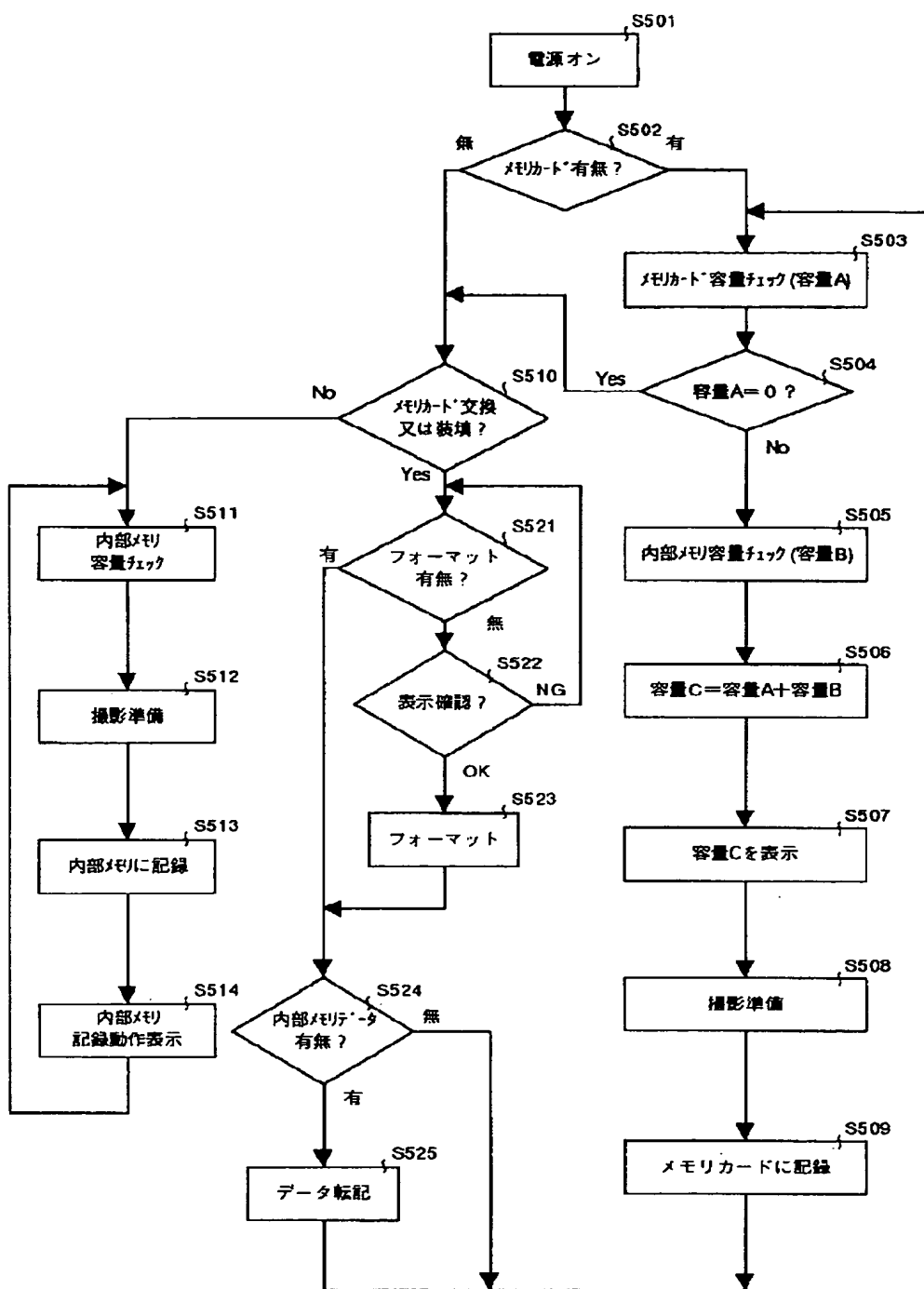
[Drawing 8]

(a)



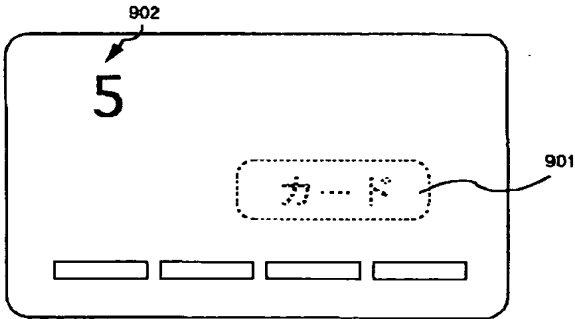
(b)

[Drawing 5]

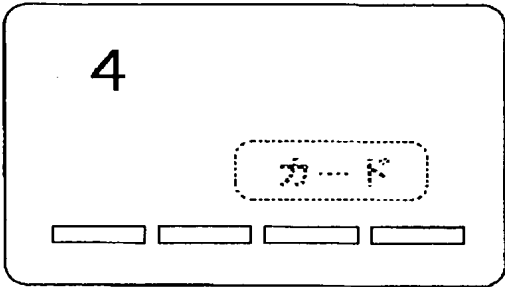


[Drawing 9]

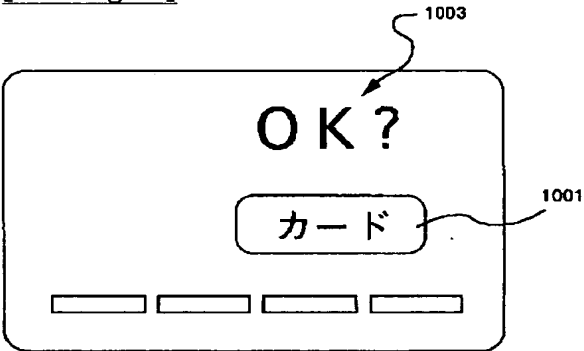
(a)



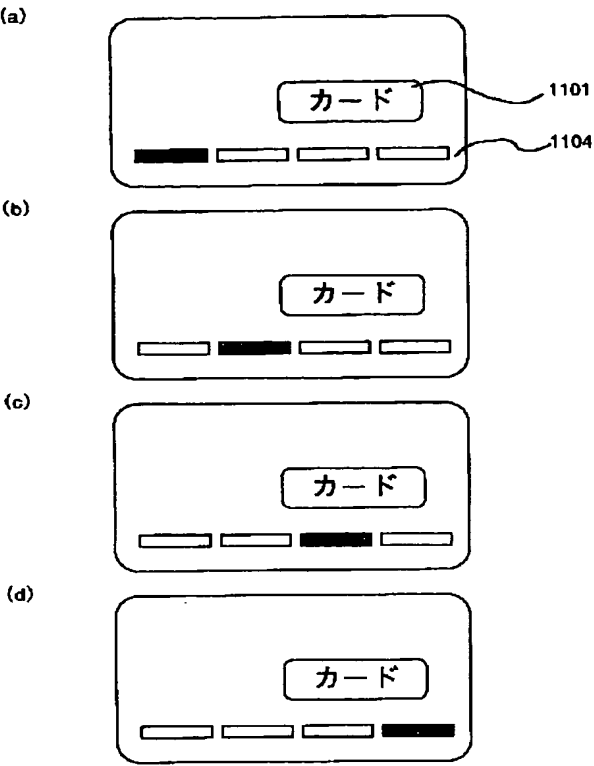
(b)



[Drawing 10]



[Drawing 11]



[Translation done.]

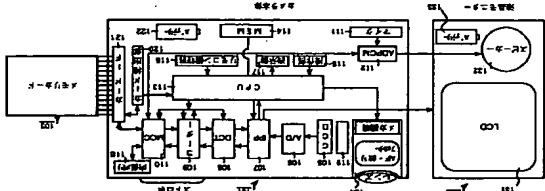
(51)Int.Cl.		識別記号	片内整理番号	P I	技術表示箇所
H 0 4 N	5 7 6 5			H 0 4 N	5 1 0 J
	5 7 8 1				B
	5 9 0 7				J
	5 9 1				
審査請求 未請求 請求項の数10 O L (全 13 頁)					
(21)出願番号	特願平9-91567	(71)出願人 000008747			
		株式会社リコー			
(22)出願日	平成 8 年(1996) 4月12日	東京都大田区中馬込1丁目3番6号			
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		会社リコー内			

(54) 発明の名称 デジタルスチルビデオカメラ

(57) 要約

【課題】 内部メモリ及び外部メモリを備えたデジタルスチルカメラにおいて、操作性に優れたデジタルスチルビデオカメラを提供することを目的とする。

【解決手段】 被写体を撮像した画像データ及びまたは取り込まれた音声データを格納する内部メモリ118と、画像データ及びまたは音声データを格納し接続部121に着脱可能に接続される外部メモリ103とを備えるデジタルスチルビデオカメラにおいて、記録制御手段1113は、接続部121に外部メモリ103が接続されていると外部メモリ検知手段120により判断された場合には、外部メモリ103を優先して記録し、外部メモリ検知手段121により外部メモリ103が未接続であると判断された場合には、内部メモリ118に記録する。



【特許請求の範囲】

【請求項1】 被写体を撮像した画像データ及びまたは取り込まれた音声データを格納する内部メモリと、前記画像データ及びまたは音声データを格納する外部メモリとを着脱可能に接続する接続部と、前記接続部に前記外部メモリが接続されているか否かを検知する外部メモリ検知手段と、前記外部メモリ検知手段により前記外部メモリが接続されていると判断した場合には該外部メモリを優先して記録し、前記外部メモリ検知手段により前記外部メモリが接続されていないと判断した場合には前記内部メモリに記録する記録制御手段と、を有することを特徴とするデジタルスチルビデオカメラ。

【請求項2】 前記デジタルスチルビデオカメラは、前記内部メモリの記録残容量及び前記外部メモリの記録残容量を検知する残容量検知手段と、前記内部メモリ及び前記外部メモリに記録可能な記録枚数を報知するコマ数報知手段と、を有することを特徴とする請求項1記載のデジタルスチルビデオカメラ。

【請求項3】 前記記録制御手段は、前記外部メモリへの記録が不可能となった場合に、前記内部メモリへの記録に切り換えることを特徴とする請求項1または2記載のデジタルスチルビデオカメラ。

【請求項4】 前記デジタルスチルビデオカメラは、前記記録制御手段により前記内部メモリへの記録がなされている際に、前記内部メモリへの記録である旨を知らせる内部メモリ記録モード報知手段を有することを特徴とする請求項1、2または3記載のデジタルスチルビデオカメラ。

【請求項5】 前記内部メモリ記録モード報知手段は、前記内部メモリへの記録が終了した後も報知し続けることを特徴とする請求項4記載のデジタルスチルビデオカメラ。

【請求項6】 前記記録制御手段は、前記内部メモリへの記録動作の後に前記外部メモリが交換された場合には、前記内部メモリ内に格納されている記録データを該交換された外部メモリに転送することを特徴とする請求項1、2、3、4または5記載のデジタルスチルビデオカメラ。

【請求項7】 前記デジタルスチルビデオカメラは、前記外部メモリが記録可能な状態にフォーマットされているか否かを判断するフォーマット判定手段を有し、前記記録制御手段は、前記フォーマット判定手段により前記外部メモリが記録可能な状態にフォーマットされていないと判定された場合には、該外部メモリへの記録または転送に先立、該外部メモリを記録可能な状態にフォーマットすることを特徴とする請求項1、2、3、4、5または6記載のデジタルスチルビデオカメラ。

【請求項8】 前記デジタルスチルビデオカメラは、前記フォーマット判定手段により前記外部メモリが記録可能な状態にフォーマットされていないと判定された場合は

(2) 特開平9-284695

に、操作者にフォーマットの合意を求める確認手段と、操作者がフォーマットについて合意した旨を指示する確認合意手段と、を有し、前記記録制御手段は、前記確認合意手段により合意の指示があった場合には、該外部メモリを記録可能な状態にフォーマットすることを特徴とする請求項7記載のデジタルスチルビデオカメラ。

【請求項9】 前記デジタルスチルビデオカメラは、前記内部メモリまたは外部メモリに記録されているデータを読み出して再生倍速に映像する映像再生手段と、前記映像再生手段による再生倍速を出力する出力手段と、を有し、前記映像再生手段は、前記内部メモリまたは外部メモリからの記録データの読み出しを、前記外部メモリを優先して行うことを特徴とする請求項1、2、3、4、5、6、7または8記載のデジタルスチルビデオカメラ。

【請求項10】 前記映像再生手段は、前記外部メモリ検知手段により前記外部メモリが接続されていないと判断された場合には、前記内部メモリから記録データを読み出すことを特徴とする請求項9記載のデジタルスチルビデオカメラ。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、画像を撮影してメモリカード等の記憶媒体に記録するデジタルスチルビデオカメラ等に関する。特に、内部メモリ及び外部メモリを備えたデジタルスチルビデオカメラにおいて、記録または再生時に、操作者が外部メモリまたは外部メモリのいずれかを判断することなく、またいづれかに設定する必要なく、更に、操作者が外部メモリ毎にフォーマットの有無を認識する必要がなく、操作性に優れたデジタルスチルビデオカメラに関する。

【0002】

【従来の技術】従来より、デジタルスチルビデオカメラにおいては、撮影した映像をそのまま記憶媒体に記憶するのではなく、映像について膨大な記憶容量が必要になるため、変換されたデジタル画像データを圧縮手段によって圧縮し、データ量を減らした後に、付属のメモリカード等の記憶媒体に記憶させている。

【0003】例えば、特開平5-91452号公報の「電子スチル・カメラおよびそのための再生装置」には、画像データを格納するための内部メモリと、画像データを格納するための外部メモリを内蔵し、コンピュータを介して着脱自在に接続可能なメモリカードリッジと、撮影した画像データを内部メモリ及び外部メモリのいずれか一方に書き込む書き込み制御手段とを備え、更に、操作者が内部メモリ及び外部メモリのいずれか一方を選択するメモリ選択スイッチを備えた構成が開示されている。

【0004】

【発明が解決しようとする課題】しかしながら、上記従

II
能なゴッテ数表示は、内部メモリ118の残容量Bである
「5」が表示されることになる(図9(a)参照)。この
の時、メモリカード103が装填されているものの残
容量が「0」であるため、表示部117におけるメモリ
カード103が装填されている旨を示す表示は、図9

「0048」即ち、この場合には、カード検知部120による検知結果よりも容量チェックの結果が優先される。このことは、表示部117における「カード」表示が出力されているときにはメモリカード103への記録モードである旨を示し、「カード」表示が消去されているときには内部メモリー118への記録モードである旨を示していることを意味する。

【0049】（2）カメラ本体101にメモリーカード103が装填されていない場合、または、メモリーカード103の残容量が“0”である場合の記録動作

メモリカード103が装填されている旨を示す表示が情
ているので、操作者は、メモリカード103の装填がされ
0”であることを知ることができる。この場合、撮影を
続けない操作者の選択は、メモリカード103を交換し
または装填して撮影を続けるか、或いは内部メモリ1
8を使用して撮影を続けるかである。
[0050]即ち、ステップ510において、メモリ
カード103が交換または装填されない場合には、内部
メモリ118のみを使用して撮影すると判断して、ステ
ップ511に進むこととなる。ステップ511では、以
内に示す如く、表示部117の所定領域に撮影可能なコマ
数として「5」の表示がなされる。

【0051】次に、撮影準備（ステップS512）がなされ、撮影した画像データ等が内部メモリ118に記録されていく（ステップS513）が、表示部117における表示可能なコマ数表示は、撮影の度（図9（b）参照）、「3」と減少していく。尚、表示部117の他の領域の「カード」表示は消えた状態であり、現在、内部メモリ118への記録モードであることを示し続ける（ステップS514）。

【0052】また、ステップS510において、メモリカード103が交換または装填された場合には、図10に示す如く、再び表示部117の領域1001に「カード1」の表示が出力される。

【0053】この場合、ステップS521では、MCC110によりメモリカード103が記録可能な状態にフォーマットされている否かの判定が行われる。フォーマットがなされていないと判断した場合は、ステップS522で、メモリカード103のフォーマットを行う。否かの確認を操作者に対して行う。

【0054】例えば、図10に示す如く、表示部117

13 全て再生された後、更に再生ボタンを押下すると、次に内部メモリ118の記録データの再生に切り換わる(ステップS604)。この場合、表示部117の表示は、「31」、「32」と更に増加していくこととなる。

【0061】表示が「35」となり、内部メモリ118の記録データも全て再生される、再びステップS602に戻って、メモリカード103の有無を確認し、メモリカード103の再生を行う、この時、表示部117の表示は、「1」、「2」、「3」と増加していく。

【0062】尚、ステップS602において、メモリカード103が読取されていないと判断された場合には、ステップS604に進んで、内部メモリ118の記録データについて再生が行われる。

【0063】

【発明の効果】以上説明したように、本発明の請求項１に係るデジタルスチルビデオカメラによれば、被写体を撮像した画像データ及びまたは取り込まれた音声データ

を格納する内部メモリと、画像データ及びまたは音声データを格納し接続部に接続される外部メモリとを備えるデジタルスチルビデオカメラにおいて、記録制御手段は、後述した外部メモリが接続されていると外部制御部メモリと外部メモリが接続されていないと、外部制御部メモリと外部メモリとにより判断した場合には、内部メモリと外部メモリとを優先して記録し、外部メモリが外部制御部メモリと外部メモリとにより判断した場合には、内部メモリが未接続であると判断された場合には、内部メモリに記録することとしたので、操作者が内部メモリまたは外部メモリのいずれかを判断することなく、また選択スイッチ等によっていずれかに設定する必要もなく、操作性に優れたデジタルスチルビデオカメラを提供することができ、

オカメちゃんによれば、内部メモリの記録容量及び外部メモリの記録読取速度を稼容量倍率手段により特知して、内部メモリ及び外部メモリに記録可能な記録枚数をコマ数で表す稼容量を認識でき、また、各記憶媒体の稼容量を稼容量倍率手段により報知することとしたので、操作者は一目瞭然と稼容量を認識できる。また、各記憶媒体の稼容量を稼容量の指示で表示等させるという手間も省け、操作性に優れたデジタルスチルビデオカメラを提供することができる。

オカカ可能となつたこと、残差検知手段または外部メモリへ記録が不可能となつたこと、残差検知手段または外部メモリへメモリ検知手段により検知した場合には、内部メモリへの記録に切り換へるので、外部メモリへの記録が終了した場合や外部メモリが未表明の場合に、内部メモリへの記録に自動的に切り換り、また、操作者が指示等をすることという手間も省け、操作性の向上したデジタルスチルビデオカメラを提供することができる。

【0066】また、請求項4に係るデジタルスチルビデオカメラによれば、記録制御手段により内部メモリへの記録がなされている際に、内部メモリ記録モード報知手段

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段により、内部メモリへの記録である旨を知らせることで、現在、いずれの記録媒体に記録されているかを操作者が認識でき、操作者に適切な判断を促し得る操作性に優れたデジタルスチルビデオカメラを提供することができ、

〔0067〕また、請求項5に係るデジタルスチルビデオカメラによれば、内部メモリへの記録が終了した後、内部メモリ記録モード報知手段により、内部メモリへの記録である旨を報知し続けるので、操作者に適切な判断を促し得る操作性に優れたデジタルスチルビデオカメラを提供することができ、

オカモリによれば、記録師印段は、内部メモリ、内部メモリの交換された場合にも、内部メモリに格納されている記録データを交換された外部メモリ内に格納されている記録データを交換された外部メモリに転送するので、記録順序と再生順序に矛盾がな
影が出来ないといった不具合もなく、ユーザがドリ
る。

[illegible]

【0070】また、請求項8に係るデジタルスチルビデオカメラによれば、フォーマット判定手段により外部メモリが記録可能な状態にフォーマットされていないと判別された場合には、記録制御手段は、確認合意手続の合意を求めることとし、記録制御手段は、確認合意手続の合意により操作者の合意指示があった場合にのみ、数外部メモリより記録可能な状態にフォーマットしてで、動作作により外部メモリの記録データを消去しようとした不具合もなく、ユーザフレンドリなデジタルスチルビデオカメラを提供することができるとする。

【0071】また、請求項9に係るデジタルシステムにより再生データが記録されているデータ、内部メモリまたは外部メモリに記録されているデータを読み出して再生する際に、出力手段により再生信号を出力する再生信号に変換し、出力手段により外部メモリと接続する場合に、録出再生データの読み出し、または外部メモリを優先して行うので、操作者が内部メモリまたは外部メモリのいずれかを判断することなく、また選択スイッチ等によりいずれかに設定する必要もなく、更に記録順序によっていずれかに設定することなく、また選択スイッチ等によりいずれかに設定することなく、更に記録順序によって

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適合した順序で再生でき、操作性に優れたデジタルスチルビデオカメラを提供することができる。

【0072】更に、請求項10に係るデジタルスチルビデオカメラによれば、録出再生手段は、外部メモリ検出手段により外部メモリが接続されていないと判断された場合には、内部メモリから記録データを読み出すこととしたので、外部メモリが装着されていない場合に、内部メモリにデータが記録されているにもかかわらず再生されないという不具合もなく、また操作者が設定指示する必要もなく、操作性に優れたデジタルスチルビデオカメラを提供することができる。

【図面の簡単な説明】

【図1】本発明の一実施形態に係るデジタルスチルビデオカメラのブロック構成図である。

【図2】実施形態のデジタルスチルビデオカメラの外観図である。

【図3】実施形態のカード検出部の一構成例を示す説明図である。

【図4】実施形態のカード検出部の他の構成例を示す説明図である。

【図5】実施形態のデジタルスチルビデオカメラにおける記録動作を説明するフローチャートである。

【図6】実施形態のデジタルスチルビデオカメラにおける再生動作を説明するフローチャートである。

【図7】実施形態の電源モードスイッチの設定を示す説明図である。

【図8】実施形態のメモリカードへの記録時における表示部の表示例を示す説明図である。

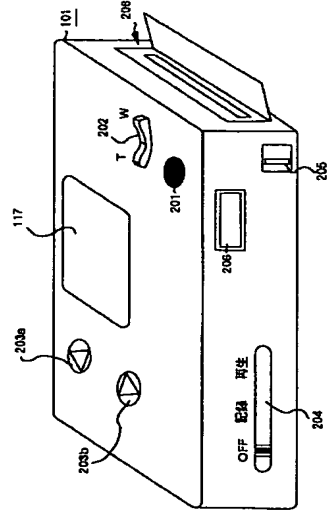
【図9】実施形態の内部メモリへの記録時における表示部の表示例を示す説明図である。

【図10】実施形態のメモリカードのフォーマット時における表示部の表示例を示す説明図である。

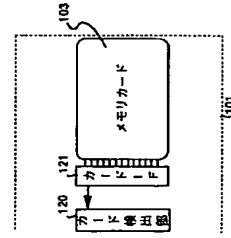
【図11】実施形態の内部メモリからメモリカードへの記録データ転送時における表示部の表示例を示す説明図である。

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【図2】



【図3】



特開平 9 - 2 8 4 6 9 5

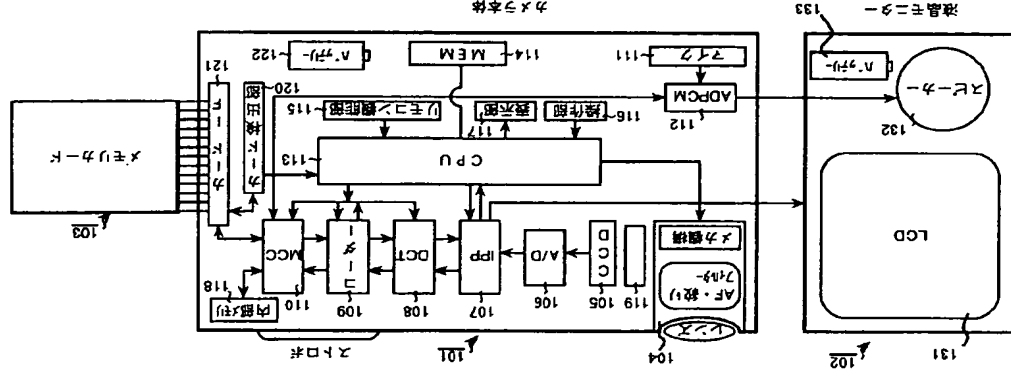
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* 【符号の説明】

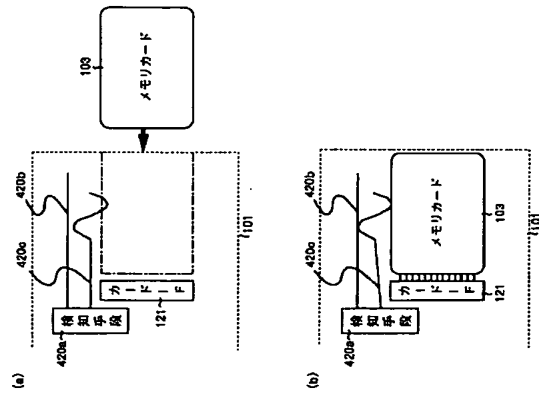
- 101 カメラ本体
- 102 液晶モニター（出力手段）
- 103 メモリカード（外部メモリ）
- 104 レンズユニット
- 105 CCD（電荷結合素子）
- 106 A/D変換器
- 107 110 録出再生手段
- 107 IPP（Image Pre-Processor）
- 108 DCT（Discrete Cosine Transform）
- 109 コーダー（Huffman Encoder/Decoder）
- 110 MCC（Memory Card Controller）（残容量検出手段、フォーマット判定手段）111 マイク
- 112 ADPCM（Adaptive Differential Pulse Code Modulation）
- 113 CPU（記録制御手段）
- 114 メモリ（MEM）
- 115 リモコン機能部
- 116 操作部
- 20 117 表示部（コマ数報知手段、内部メモリ記録モード報知手段、確認手段）
- 118 内部メモリ
- 119 光学ローパスフィルター
- 120 カード検出部（外部メモリ検出手段）
- 121 カードIF（接続部）
- 122、133 バッテリー
- 131 液晶パネル（LCD）
- 132 スピーカー
- 201 レリーズスイッチ
- 202 ズームスイッチ
- 203 a、203 b コマ送りスイッチ
- 204 電源モードスイッチ
- 205 メモリカードジェネクトスイッチ
- 206 ファインダー
- * 208 メモリカードの挿入部

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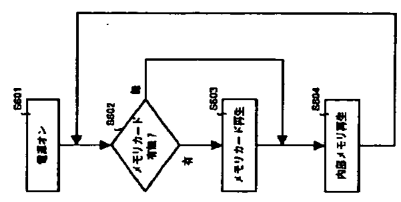
【図1】



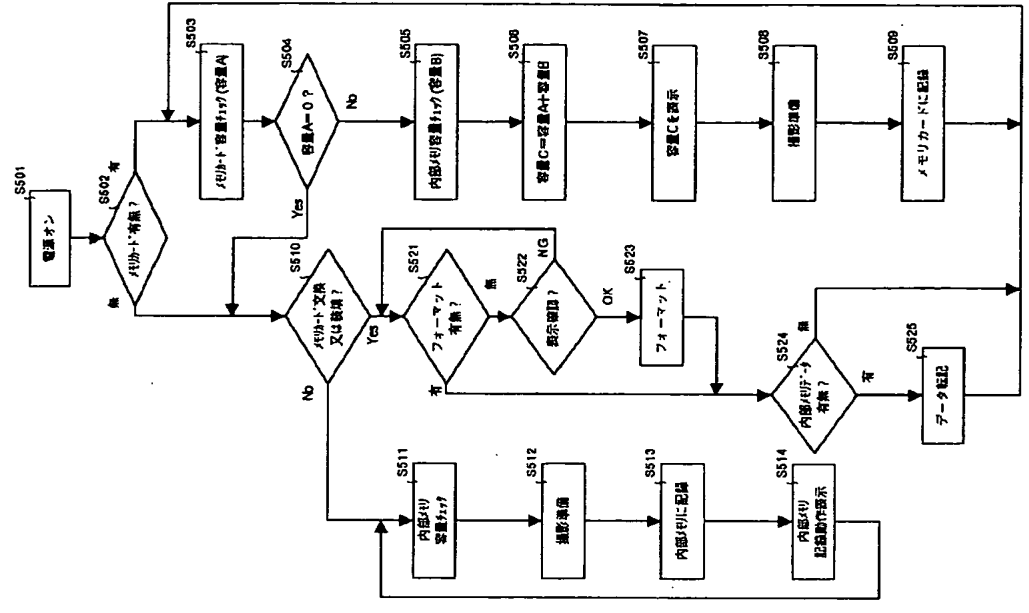
【図4】



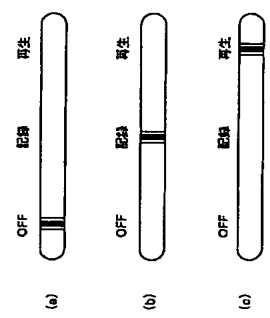
【図6】



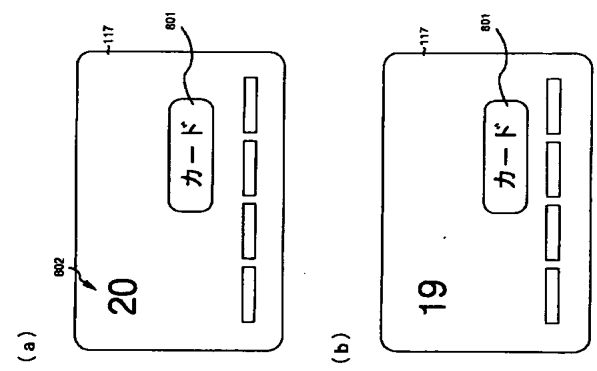
【図5】



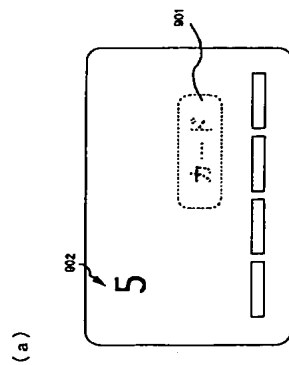
【図7】



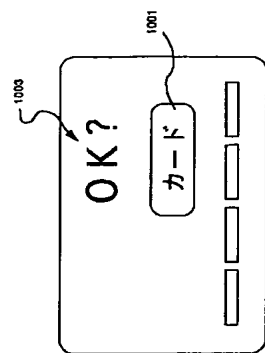
【図8】



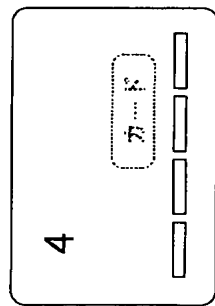
〔図9〕



〔図10〕



(b)



〔図11〕

